



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 1 003 210 A3**

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
14.06.2000 Bulletin 2000/24

(51) Int Cl.7: **H01L 21/316**

(43) Date of publication A2:
24.05.2000 Bulletin 2000/21

(21) Application number: **99308828.5**

(22) Date of filing: **05.11.1999**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

- Moyer, Eric Scott
Midland, Michigan 48642 (US)
- Spaulding, Michael John
Bay City, Michigan 48708 (US)

(30) Priority: **20.11.1998 US 197249**

(71) Applicant: **DOW CORNING CORPORATION**
Midland Michigan 48686-0994 (US)

(74) Representative: **Kyle, Diana**
Elkington and Fife
Prospect House
8 Pembroke Road
Sevenoaks, Kent TN13 1XR (GB)

(72) Inventors:
• Chung, Kyuha
Midland, Michigan 48642 (US)

(54) **A method of forming coatings**

(57) A coating is formed on a substrate by depositing a solution comprising a resin containing at least 2 Si-H groups and a solvent in a manner in which at least 5 volume % of the solvent remains in the coating after deposition followed by exposing the coating to an envi-

ronment comprising a basic catalyst and water at a concentration sufficient to cause condensation of the Si-H groups and evaporating the solvent from the coating to form a porous network coating. The method of the invention is particularly useful for applying low dielectric constant coatings on electronic devices.

EP 1 003 210 A3

EP 1 003 210 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 99 30 8828

| DOCUMENTS CONSIDERED TO BE RELEVANT | | | |
|---|--|--|--|
| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int.Cl.7) |
| A | EP 0 461 782 A (DOW CORNING) 18 December 1991 (1991-12-18) | 1-9, 11, 14, 15 | H01L21/316 |
| D | & US 5 262 201 A | | |
| A | EP 0 460 868 A (DOW CORNING) 11 December 1991 (1991-12-11) * the whole document * | 1-9, 14, 15 | |
| D | & US 5 116 637 A | | |
| A | WO 98 49721 A (ALLIED SIGNAL INC) 5 November 1998 (1998-11-05) * claims 1-17 * * page 4, line 13 - page 12, line 16 * | 1, 5-15 | |
| A | US 5 753 305 A (JENG SHIN-PUU ET AL) 19 May 1998 (1998-05-19) | | |
| The present search report has been drawn up for all claims | | | TECHNICAL FIELDS SEARCHED (Int.Cl.7) |
| | | | H01L |
| Place of search | Date of completion of the search | Examiner | |
| THE HAGUE | 19 April 2000 | Rigondaud, B | |
| CATEGORY OF CITED DOCUMENTS | | T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document | |
| X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document | | | |

EPO FORM 1502 03.02 (P0401)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 30 8828

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

19-04-2000

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---------------------|----------------------------|---------------------|
| EP 0461782 A | 18-12-1991 | US 5262201 A | 16-11-1993 |
| | | CA 2042694 A | 05-12-1991 |
| | | DE 69100467 D | 11-11-1993 |
| | | DE 69100467 T | 28-04-1994 |
| | | ES 2047379 T | 16-02-1994 |
| | | JP 1906424 C | 24-02-1995 |
| | | JP 4227980 A | 18-08-1992 |
| | | JP 6023333 B | 30-03-1994 |
| | | KR 9509548 B | 24-08-1995 |
| EP 0460868 A | 11-12-1991 | US 5116637 A | 26-05-1992 |
| | | CA 2042689 A | 05-12-1991 |
| | | DE 69102021 D | 23-06-1994 |
| | | DE 69102021 T | 08-12-1994 |
| | | ES 2056581 T | 01-10-1994 |
| | | JP 4228415 A | 18-08-1992 |
| WO 9849721 A | 05-11-1998 | KR 176259 B | 01-04-1999 |
| | | AU 7366298 A | 24-11-1998 |
| US 5753305 A | 19-05-1998 | EP 0993684 A | 19-04-2000 |
| | | NONE | |

EPO FORM P469

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

THIS PAGE BLANK (USPTO)